CRAGIN (E.B.)

Operative Experience with Ectopic Gestation

BY

EDWIN B. CRAGIN, M.D.
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OPERATIVE EXPERIENCE

WITH

ECTOPIC GESTATION.[1]

The subject selected for my paper before you to-day is one which concerns not only the specialist but the general practitioner; not only the man in the city, but equally well one in the country with practice scattered far and near. And it seems to me that the responsibility of the latter far surpasses that of the former, for in dealing with cases of ectopic gestation the element of time is all-important; and in the country distance means time, and assistance is often hard to obtain.

The literature of the subject I shall not review, for since March 3d, 1883, when Mr. Tait, of Birmingham, performed his first successful operation, the reports of cases of ectopic gestation and operations for the same have been frequent; in fact, the medical journals abound in such cases and in discussions concerning them.

My purpose to-day is to review carefully my own operative experience with such cases, present you the results, both bad and good, and a few conclusions which seem justified by the experience.

Case I.—Mrs. K., native of Germany, age 31; admitted to the Roosevelt Hospital September 4th, 1889, with the following history: Married nine years; has had three children and one miscarriage; last confinement in 1885, four years previous to admission. Menstruation first appeared at 15; periods regular

[1] Read by invitation before the Orange County Medical Society, at the Thrall Hospital, Middletown, N. Y., October 11th, 1892.

till three or four years ago, since then has had dysmenorrhea and occasionally menorrhagia.

Present illness began seven weeks ago; she had skipped two menstrual periods and believed herself pregnant. Seven weeks ago she began to flow, and this flow has continued most of the time until the present. Four weeks ago she passed some blood clots and thought she had a miscarriage. She has lost flesh,

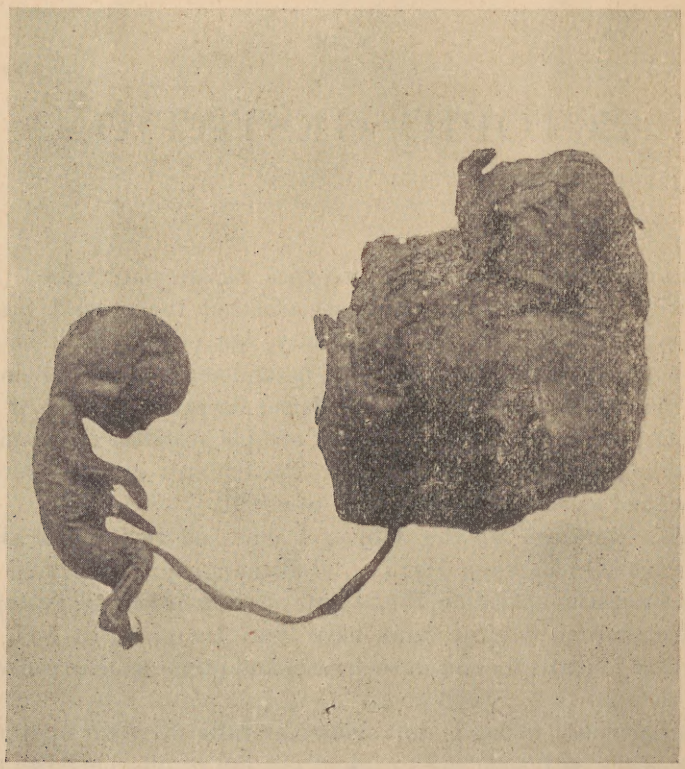

FIG. 1.—Case II. Operation February 20th, 1890.

strength, and appetite. On admission, temperature 99° F., pulse 85; urine normal. Bimanual examination shows a large, soft mass in posterior fornix, pushing uterus forward and to the right; cervix soft; uterine cavity enlarged, measures three inches.

September 7th, abdominal section. On opening the peritoneum a large amount of dark blood welled up, followed at once by bright blood. It was evident that the sac felt before opera-

tion had recently ruptured, perhaps during the administration of ether, as the patient struggled violently then. The left broad ligament was now clamped close to the uterus, controlling the active bleeding; the blood clots were then removed by hand and sponges, and a partially necrosed, foul-smelling placenta, larger than a man's hand, was found attached to the posterior wall of the uterus, lining the pouch of Douglas and extending up on the rectum. This was carefully peeled off and the gestation sac removed. The hemorrhage was free, but was checked by irrigation with a large amount of hot water and by iodoform gauze packing about a glass tube. Patient did not rally, but died of shock and sepsis at the end of thirty-six hours. Thus my first case was an unsuccessful one—unsuccessful in that I did not make the diagnosis before operation, and, what is of chief importance, that it had a fatal issue. Riper experience would have enabled me to handle the case more skilfully; but necrosis of the placenta had already begun, and this, I think, was the cause of her sepsis and death. I am happy to say it is the only unsuccessful one of my series.

Case II.—Mrs. S., Orange, N. J., native of United States, age 37; seen by me in consultation with Dr. Seward, February 19th, 1890. Married sixteen years; has had two children, the last fourteen years ago. Menstruation first appeared at 12; periods regular; duration five to six days, without pain; last menstruation November 1st, 1889.

January 19th, while at stool, had a severe attack of pain, felt faint, and passed a small, fleshy mass from vagina. Was afterward confined to bed with an attack of peritonitis (high temperature and pulse, tympanites, etc.). From this she improved and was able to walk about the room a little, when she was seized, February 14th, with another attack, and again on February 18th, the day before I saw her. I found patient very anemic and sallow, with pulse 122, temperature 102.2° F., respiration 42. Bimanual examination disclosed an elastic mass filling the pelvis, reaching nearly to the umbilicus, and pushing uterus up behind symphysis pubis. Diagnosis, ectopic gestation with three successive ruptures, viz., January 19th, February 14th, and February 18th. The hour was late for operation that day, so it was postponed till the morrow.

February 20th, abdominal section, assisted by Drs. Seward, Locke, and Dowd. On opening peritoneal cavity the omentum

appeared much injected and adherent to the mass felt before operation. On gently separating the adhesions a large quantity of blood clots appeared; introducing my hand into the sac, I easily removed the fetus and placenta, a photograph of which I here present (Fig. 1). The abdomen was irrigated with hot water and drained by means of a glass tube with iodoform gauze packed all about it. In this case the sac was so adherent that it was not removed. Time of operation, twenty-five minutes.

Patient made a perfect recovery. Convalescence was retarded by an abdominal sinus, which healed March 23d, 1891. Highest temperature after operation, 104.6°; highest pulse, 146; temperature above 100° F., fourteen days; temperature above 101° F., six days.

Case III.—Miss C., native of Ireland, age 21; admitted to the Roosevelt Hospital September 6th, 1890. Unmarried; had one child two years ago. Menstruation first appeared at 14; periods regular till June 28th, her last regular period. She admits exposure to pregnancy July 23d. She did not menstruate in July, but August 24th, after several days of sharp pain in the left iliac region, she began to flow. The following day she had a severe rigor.

She was first seen by me in the out-patient department of the hospital. She had the breast signs of pregnancy, and on the left side of the uterus could be felt an elongated, elastic mass. The diagnosis of ectopic gestation was made, the site being the left tube and unruptured. There were no vacant beds in the hospital that day, and patient was told to come the next day; but if in the meantime she had any severe attacks of pain and felt faint, to call a cab and come at once, and she would be cared for.

Six hours later she was brought to the hospital in a state of shock; pulse 135, temperature 100° F.; body covered with a cold perspiration. She gave a history of sudden sharp pain in the left iliac region, followed by syncope.

Bimanual examination disclosed the fact that, instead of the distended tube felt in the afternoon, there was a large hematoma filling the left side of the pelvis, bulging into vagina, extending above the pubes, and surrounding the rectum. As the rupture had evidently occurred between the folds of the broad ligament, an ice coil was applied and quiet enjoined. The patient steadily improved for nearly two weeks. September 17th: Ex-

amination showed that the hematoma on the left side had diminished in size, but a small, tender mass was developing on the right side of the uterus. September 20th: The mass in the right fornix has increased considerably in size and is distinctly elongated. This examination was made in the morning. That same afternoon patient complained of very sharp pain in the right iliac region. This pain continued, and temperature rose to 104⅕° F.

Abdominal section at midnight. On opening the peritoneal cavity a quantity of free pus escaped. It was found that a pyosalpinx on the right side had ruptured. This was clamped, abdomen irrigated with a large amount of hot water, then ligature applied and the right appendage removed. The left side was carefully examined, and there could be distinctly felt the hematoma previously described. It was evidently undergoing absorption, and was left intact. Patient made a rapid and perfect recovery, and was discharged cured October 11th. Highest temperature after operation, 100.8°, the following morning; highest pulse, 130; temperature above 100° F., one day.

Here was a case of ectopic gestation which was seen and diagnosed before rupture occurred, again after rupture had occurred between the folds of the left broad ligament, and again the resulting hematoma was examined from within the abdomen, at the time of operation, for ruptured pyosalpinx which subsequently developed on the opposite side.

Case IV.—Mrs. L., native of Ireland, age 27; admitted to the Roosevelt Hospital July 11th, 1891. Married at 19; has had two children, the last six years ago; since last confinement has suffered with pain in the back. Menstruation first appeared at 14; periods regular and painless, duration six to seven days; last menstruation occurred in latter part of April. The last of May patient was attacked with severe, cramp-like pain in the left side of abdomen, radiating in all directions. Since then she has had four attacks, each worse than the preceding. June 6th, following an attack of pain, patient became unwell, and after each succeeding attack has flowed for one or two days. She does not remember passing any shreds; attacks of pain cause patient to feel faint. Abdomen and breasts have enlarged. On admission, temperature 99.6°, pulse 118.

July 12th, the day after admission, patient had another attack.

of severe pain, causing her to vomit; she felt faint, and in a few moments was covered with profuse perspiration.

July 13th, abdominal section. Peritoneal cavity found full of dark blood. The left tube had ruptured; it was clamped on both sides of the rupture, ligated, and removed. The right appendage was found diseased and was also removed. The fetus and placenta, a photograph of which I here present (Fig. 2), were found free in the abdominal cavity; these were removed, also numerous blood clots. Abdomen was irrigated and

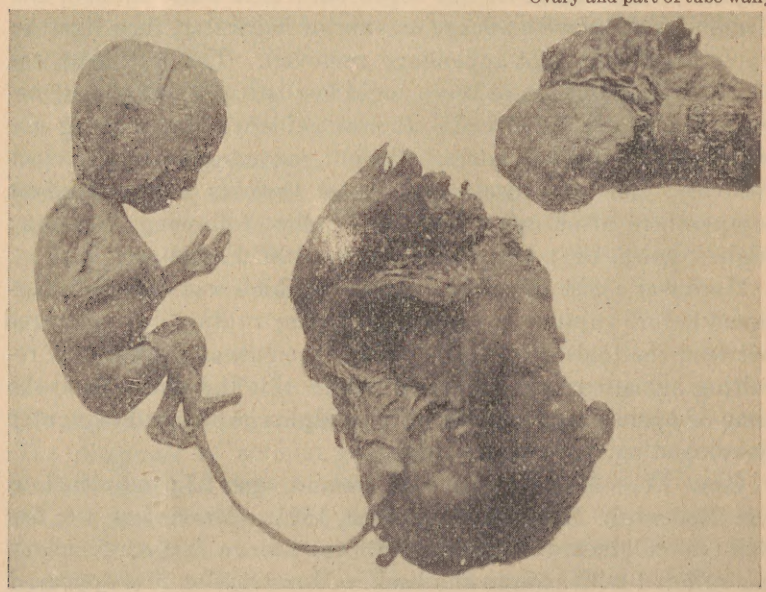

FIG. 2.—Case IV. Operation July 13th, 1891.

drained with iodoform gauze. Highest temperature after operation, 102.4°, on July 14th; highest pulse, 140, on July 14th; temperature above 100°, at intervals for nine days. Patient made a perfect recovery.

CASE V.—Mrs. H., native of Ireland, age 32; admitted to the Roosevelt Hospital July 18th, 1891. Married nine years; has had one child, seven years ago. Since childbirth has suffered with pain in left side and in the small of the back. Menstruation first appeared at 16; periods regular, duration three to four days; last normal period occurred April 15th. She did not

menstruate in May, but in the latter part of the month had a severe attack of pain in her left side. June 5th, during a similar attack of pain, and seven and one-half weeks from her last menstruation, she began to flow, and has flowed almost constantly until admission. The attacks of pain have been several times repeated, and with increasing severity. The last attack caused her to fall down upon the floor where she stood. She has passed shreds twice. She says she has twice been given up by her physicians to die. On admission, temperature 99.6° F., pulse 80.

Bimanual examination reveals a mass behind and to the left of the uterus; the mass feels like blood clots. Diagnosis of ectopic gestation was made.

July 20th, abdominal section. No free blood found in the abdominal cavity. The mass was found to be a gestation sac formed by the left tube, which had evidently ruptured and the blood extravasated from it shut off from the general peritoneal cavity by peritonitic adhesions. The sac was ligated and removed. The right appendage was then examined, found diseased, and removed; abdomen irrigated and drained by a glass tube with iodoform gauze packed around it. Patient made an uninterrupted recovery. Highest temperature, 102° F.; highest pulse, 116; temperature above 100° F. at four different times during her convalescence—July 21st and August 4th to 7th.

Case VI.—Mrs. C., colored, native of United States, age 33; admitted to the Roosevelt Hospital June 28th, 1892. Married sixteen years; four children; no miscarriages; last child four years ago. Menstruation first appeared at 16; periods regular, duration three to four days, with cramp-like pains before the flow. She is said to have had pelvic inflammation ten years ago. Since the birth of last child patient has been well and has menstruated regularly until last May, which month she skipped, her last menstruation occurring April 20th. During May and June she has felt pain at times in her breasts, and thinks them growing larger; has had morning sickness, facial neuralgia of late, and pain in the small of the back.

Five days ago patient had a sudden, sharp, shooting pain in the lower part of the abdomen, so severe that she fell from the chair where she was sitting. This pain lasted for two hours; her abdomen became swollen and tender; has felt bad ever since; defecation and micturition painful.

This morning, just before patient was brought to the hospital, she had a second severe attack of pain, worse than the preceding. She again fell from her chair and lost consciousness for the moment. Her body was covered with cold, clammy perspiration, she was nauseated, and had a faint bloody vaginal discharge. On admission, temperature 97°, pulse 80 and feeble. Examination of breasts showed an increase of pigment and the presence of colostrum.

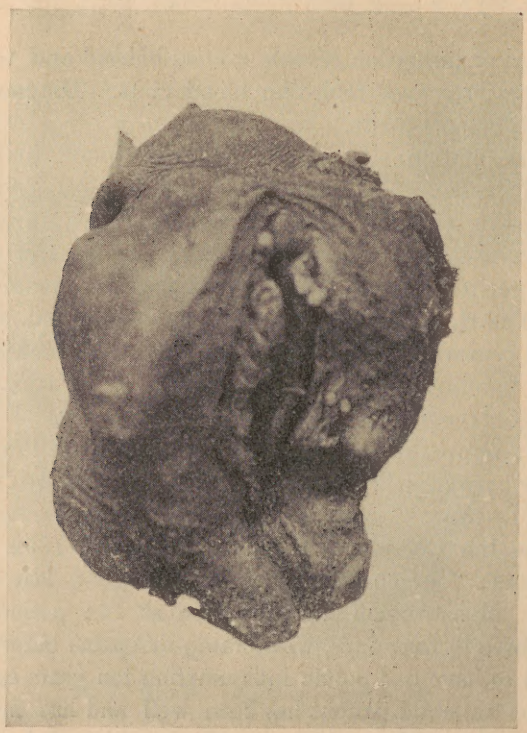

FIG. 3.—Case VI. Operation June 28th, 1892.

Bimanual examination revealed a uterus much enlarged, studded with fibroids, and to the right a small, tender mass. Diagnosis, ruptured ectopic gestation complicated with fibromyomata. As soon as the patient had rallied in part from her shock she was etherized and placed on the table in Trendelenburg's position. The abdomen was opened and considerable free blood found, the source of which was not at first evident. On lifting up two pedunculated fibroids the right tube was found to be the seat of

an ectopic gestation, and the blood found free in the abdominal cavity had come through the fimbriated extremity of the tube, the wall of the latter remaining intact. In other words, we had to deal with what Bland Sutton calls a "tubal abortion."

The tube was easily ligated and removed, but it was then found that in raising the fibroids to reach the tube their capsules had been lacerated at their pedicles and they were bleeding freely. The two fibroids were enucleated and an attempt was made to check the hemorrhage by suturing, but this failed. It then seemed best to extirpate the uterus entire. This was done, ligating the broad ligaments in section. The cavity was sponged dry, drained by iodoform gauze through the vagina, and the abdominal wound then closed. The patient made an uninterrupted recovery. Temperature never reached 100° F.; highest pulse, 124. A photograph of the specimen I here present (Fig. 3). On cutting open the uterus a perfect decidua was found and is clearly seen in the photograph. The tube was opened and microscopic sections made of its contents; these gave good examples of chorionic villi.

Having reviewed the cases in detail, let us now reconsider them with a view to symptoms, pathology, diagnosis, and treatment.

In five of the six cases there had been a period of sterility varying from four to fourteen years, and this we find the rule; yet it is not infallible, for one had been pregnant two years before.

In all the cases there was a history of some disturbance of menstruation, usually an amenorrhea, although patient had previously been regular. In most of the cases I have seen there has been first a cessation of menstruation, then a sudden sharp pain, followed by menorrhagia and metrorrhagia lasting several weeks. This attack of pain in the cases of the above series has occurred on an average of eight weeks from the last menstruation—the earliest six weeks, as in Case IV.; the latest ten weeks, as in Case II. With the appearance of the menorrhagia some shreds are frequently passed from the uterus. These are pieces of the decidua, or, rarely, the decidua may be passed entire. The passage of these shreds often deceives the patient, who thinks she has had a miscarriage and that her trouble is over. Cases I. and II. are examples of this.

Sometimes all the subjective symptoms of early pregnancy are present and the patient herself believes she is pregnant.

The breast signs of pregnancy are often visible and are of importance in diagnosis; in three of the above cases these signs were distinct.

In the case seen before rupture occurred the only symptom was a feeling of weight and discomfort, and this accounts for the fact that so few cases are seen before rupture. Patients during the ante-rupture period suffer little, and either believe themselves free from all trouble or the subject of a normal pregnancy. It is only when the initial hemorrhage occurs, with a sudden sharp pain and a feeling of faintness, that they are led to believe that everything is not as it should be.

In all the cases of ectopic gestation which have come under my observation the original site of the pregnancy has been the Fallopian tube. The interstitial variety I have never met with, and consequently shall not speak of in this paper.

Concerning the cause of ectopic gestation we know very little; but the view that it is due to some previous disease of the tubal mucous membrane, preventing the normal passage of the ovum, seems fairly well borne out by the symptoms of pelvic pain and sterility present in so large a proportion of my cases.

As to what occurs at the time of one of these attacks of sharp pain and faintness, I believe it usually, if not always, means one thing—hemorrhage.

As the fetus develops it soon outgrows the power of accommodation of its unnatural surroundings, and a solution of continuity results. This may (1) either occur between the chorion and the tubal mucous membrane, and hemorrhage take place from the tubo-chorionic vessels into the tubal sac, distending it and causing pain by this distention; or (2) the tubal sac, thinned already by distention and weakened by the ingrowths of the chorionic villi, may suddenly rupture, either from a traumatism, be it ever so slight, or from a hemorrhage into it, the pain being caused both by the rupture and by the escape of the tubal contents with hemorrhage.

Three methods of escape from the tube are recognized, and all three are exemplified by cases in the above series:

1. Through the wall of the tube into the peritoneal cavity, as in Cases I., II., IV., and V.

2. Through the tubal wall down between the folds of the broad ligament, as in Case III.

3. Through the fimbriated extremity of the tube—called by Bland Sutton "tubal abortion"—as in Case VI.

That the rupture into the peritoneal cavity of a tube the seat of an ectopic gestation is not necessarily fatal at its first occurrence is abundantly proven by cases in this series. In all the cases which ruptured in the above manner there was evidence of such an occurrence at least twice, and in some of them even more.

The hemorrhage in the primary rupture is often slight. The opening in the sac may be small, and the fetal product in its partial escape may plug this opening and so check further hemorrhage. The effused blood is then shut in by peritonitic adhesions, thus forming a new sac; this in turn being distended and perhaps ruptured by a succeeding hemorrhage.

Now, as to diagnosis, there are three points of importance:

1. As to the existence of ectopic gestation.
2. Whether the sac has ruptured or not.
3. Whether rupture has occurred into the general peritoneal cavity or between the folds of the broad ligament.

The symptoms which the writer would emphasize as leading to a diagnosis of the existence of ectopic gestation are the following:

1. Some change in the menstrual history, usually an amenorrhea followed by menorrhagia.
2. Subjective symptoms of pregnancy.
3. Physical signs of pregnancy in breasts and cervix, with a doughy mass behind or at one side of the uterus.
4. If the primary rupture has occurred, a history of sudden, sharp pain and the symptoms of shock and hemorrhage.
5. Usually a history of sterility for several years.

Few opportunities are afforded for examining an unruptured ectopic gestation. When such an opportunity is furnished we find, coupled with the symptoms of early pregnancy and pelvic pain, an elongated mass, the shape of a distended tube and feeling like a hydro- or pyosalpinx, with perhaps a rather more marked pulsation of blood vessels about it. This differs from the irregular, doughy mass found after rupture.

I doubt very much whether a differential diagnosis is possible between a rupture of a tubal sac through its wall into the peritoneal cavity, and an expulsion through the fimbriated extremity of the tube—*i.e.*, "tubal abortion." I certainly did not make this differential diagnosis in my cases. In both there are the symptoms of shock and internal hemorrhage. The only difference

which suggests itself is that in the "tubal abortion" the hemorrhage is usually less in amount, and consequently the constitutional disturbance is usually less.

The differential diagnosis between an intraperitoneal rupture and one subperitoneal between the folds of the broad ligament, is not only often possible, but it is of great importance, for on it depends, according to the views of the writer, the method of treatment.

The physical signs which enable one to make a diagnosis of a subperitoneal rupture of an ectopic gestation, as distinguished from an intraperitoneal rupture, are the following:

There is a distinct, circumscribed mass or tumor. This mass lies low in the pelvis; it lies chiefly on one side, but may extend around behind the uterus; it bulges into the vagina, and can usually be felt extending horizontally above the brim of the pelvis, as though the folds of the broad ligament were opened out and the peritoneum lifted from the pelvis. The uterus is pushed toward the opposite side and forward. If the mass is situated on the left side a stricture of the rectum is produced by it. In addition to these physical signs our diagnosis is further confirmed by the rallying of the patient from shock, and evidence that the active hemorrhage has ceased.

Concerning the treatment of ectopic gestation the writer's individual experience, as also his observation in the care of cases belonging to other men, lead him to the following convictions:

1. When the diagnosis is made before the rupture of the tube the best interests of the patient are subserved by abdominal section and the removal of the pregnant tube; and this I would state recognizing full well the claims of the advocates of galvanism and faradism. The following reasons force me to the above conclusion: Before the rupture occurs the operation for removal of the tube is one of the simplest of abdominal sections. The operation at this period may be performed with selected, trained assistants and with careful attention to all antiseptic details. By this operation the patient is removed from the danger which momentarily threatens her—the danger of rupture and fatal hemorrhage before surgical aid can be secured. She is also saved the trouble which is liable to arise from a tube once pregnant but not removed.

2. When the product of conception has escaped from the tube into the peritoneal cavity, either through the wall of the

tube or by "tubal abortion," the only safe rule of action is abdominal section, removal of the tube, and cleansing the abdomen. The writer believes that in not a few cases the product of conception has escaped from the tube with slight hemorrhage, both fetus and blood clots have been absorbed by the peritoneum, and the patient has recovered without operation. While frankly admitting this as a possibility, we are forced to confess that we never can foresee those cases in which the hemorrhage is to be slight, and while one has survived such an experience many have perished. A few hours, nay, even a few moments, will sometimes change the condition of a woman from one of apparent health to that of imminent death from internal hemorrhage. This short time is our only opportunity to save our patient. Shall we neglect our opportunity?

3. When the rupture of the ectopic-gestation sac has occurred between the folds of the broad ligament, excepting the rare condition where the life of the fetus continues, operation is not indicated unless suppuration occurs or unless repeated hemorrhages threaten a secondary rupture into the peritoneal cavity. In both these conditions the writer's method is vaginal incision and drainage. Four cases of hematosalpinx which resembled cases of ectopic gestation have been operated on by me, but, as positive proofs of the true condition have been absent, they have not been included in this paper.

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